1. In combination, at least one MEMS (micro-electro-mechanical system) and a source of electrical energy internal within the MEMS comprising a microscopic battery.

2. In combination, at least one MEMS, at least one microcircuit and a microscopic battery integrated with the MEMS and the microcircuit as an low power loss internal source of electrical energy.

3. In combination, at least one microelectronic circuit and a microscopic battery integrated with the microelectronic circuit as an internal low power loss source of electrical energy.

4. In combination, a microscopic circuit, at least one MEMS device and an aqueous microscopic battery integrated with the microscopic circuit and the MEMS device as an internal low power loss source of electrical energy.

5. A combination according to claim 4 wherein the MEMS device is selected from the group consisting of: (a) a device requiring pulses of electrical power; (b) a remote sensor; (c) an autonomous microscopic device; and (d) a relay.

6. A combination according to claim 4 wherein the MEMS device is selected from the group consisting of: (a) an array of remote sensors; (b) a pump; (c) an accelerometer; and (d) a portable MEMS device.

7. A combination according to claim 4 wherein the MEMS device is selected from the group consisting of: (a) an embedded sensor; (b) a smart sensor; (c) a flexible sensing surface; and (d) an integrated fluidic system.

8. A combination according to claim 4 wherein the MEMS device is selected from the group consisting of: (a) a safing and arming device; (b) a friend or foe identification device; (c) a system integrity monitor; and (d) a communication monitor system, including but not limited to a satellite monitor.

9. A combination according to claim 4 wherein the MEMS device is selected from the group consisting of: (a) a low power display; and (b) a microopto mechanical monitor system.

10. A microscopic battery integrated or integratable with a microelectronic circuit and/or a MEMS device to provide long term power and to materially limit power losses, the microscopic battery comprising a body of material having low weight, a microscopic cathode, a microscopic anode and a microscopic amount of electrolyte contained within a microscopic space in the body.

11. A microscopic battery according to claim 10 wherein the microscopic battery is rechargeable.

12. A microscopic battery according to claim 10 wherein the microscopic battery is primary.

13. A microscopic battery according to claim 10 wherein the microscopic battery is integrated with an autonomous sensor system.

14. A microscopic battery according to claim 13 wherein the autonomous sensor system senses conditions, analyzes data, and issues RF signals.

15. A microscopic battery according to claim 10 wherein at least one of the cathode and the anode comprises an ultra thin film of conductive material.

16. A microscopic battery according to claim 10 wherein the cathode and the anode are held apart by a separator.

17. A microscopic battery according to claim 10 wherein the cells are carried on a rigid dielectric substrate.

18. A microscopic battery according to claim 10 wherein the cells are carried on a flexible sheet.

19. A microscopic battery according to claim 10 wherein the electrodes are created by metallic deposition, thin layer lithographic patterning and etching.

20. A microscopic battery according to claim 10 wherein the electrodes comprise an etched profile.

21. A microscopic rechargeable battery adapted for direct integration with MEMS and/or microcircuitry to significantly reduce power losses, the microscopic rechargeable battery comprising etched spaced electrodes comprising microscopically thin layers with a microscopic space containing electrolyte interposed between the spaced electrodes.

22. A microscopic rechargeable battery according to claim 21 wherein a microscopic separator is interposed between the microscopic electrodes.

23. A microscopic rechargeable battery according to claim 21 wherein the thin electrode layers comprise generally flat conductive film.

24. A microscopic rechargeable battery according to claim 21 wherein the microscopic battery is sealed.

25. A microscopic rechargeable battery according to claim 21 wherein the battery geometry is selected from the group consisting of: (a) flat cell; (b) spirally wound; (c) bipolar; and (d) linear.

26. A microscopic rechargeable battery according to claim 21 wherein the battery geometry is selected from the groups consisting of: (a) wire-shaped; (b) odd-shaped; (c) wire in a can; and (d) peg in a block.

27. A microscopic rechargeable battery according to claim 21 wherein at least one electrode comprises a material selected from the group consisting essentially of materials comprising: (a) lead; (b) zinc; (c) nickel; and (d) derivatives of (a), (b) and (c).

28. A microscopic rechargeable battery according to claim 21 wherein at least one electrode comprises a material selected from the group consisting essentially of materials comprising: (a) a metal hydride; (b) lithium; (c) silver; and (d) copper, and derivatives thereof.

29. A microscopic rechargeable battery according to claim 21 wherein at least one electrode comprises a material selected from the group consisting essentially of materials comprising: (a) platinum; (b) carbon; (c) cadmium; and (d) lanthanum, and derivatives thereof.

30. A microscopic rechargeable battery according to claim 21 wherein the electrolyte is selected from the group consisting essentially of: (a) liquid; and (b) solid.

31. A microscopic rechargeable battery according to claim 30 wherein the solid electrolyte is selected from the group consisting essentially of: (a) an ion-conducting polymer; (b) lithium glass; and (c) a polymer containing an ionically-conductive material.

32. A microscopic rechargeable battery according to claim 30 wherein the liquid electrolyte comprises an aqueous solution also comprised of potassium hydroxide and/or sulfuric acid.

33. A microscopic rechargeable battery adapted for direct integration into a MEMS or non-MEMS microcircuit to significantly alleviate power losses, the battery comprising at least one cell comprised of separated microscopic electrodes etched and patterned in place to define a microscopic electrolyte storage space between the etched microscopic electrodes.

34. A microscopic rechargeable battery according to claim 33 wherein at least one electrode comprises a thin film of conductive material.

35. A microscopic rechargeable battery according to claim 33 further comprising a non-conductivity base upon which components of the microscopic battery are carried.

36. A microscopic rechargeable battery according to claim 35 wherein the base is selected from the group consisting essentially of: (a) conformal material and (b) rigid material.

37. A microscopic rechargeable battery according to claim 33 further comprising an electrolyte influent flow path extending through at least one electrode by which liquid electrolyte is introduced into the storage space.

38. A microscopic rechargeable battery according to claim 33 wherein the storage space comprises an etched cavity.

39. A microscopic rechargeable battery according to claim 33 wherein a separator prevents contact between the electrodes.

40. A microscopic rechargeable battery according to claim 33 wherein the storage space comprises a porous separator carrying electrolyte.

41. A method comprising the steps of:

fabricating a microscopic battery;

integrating the microscopic battery into a MEMS as an internal source of electrical power.

42. A method comprising the steps of:

fabricating a microscopic battery;

integrating the microscopic battery with a MEMS and a microcircuit as a low power loss long term internal source of electrical power.

43. A method comprising the steps of:

fabricating a microscopic battery;

integrating the microscopic battery into a microscopic circuit as a low power loss internal source of electrical power.

44. A method comprising the steps of:

fabricating a microscopic battery by interconnecting a plurality of microscopic battery cells;

directly integrating the microscopic battery into a microelectronic circuit and/or a MEMS device as an internal source of electrical power.

45. A method according to claim 44 wherein the microscopic cells are interconnected so that at least two distinct voltage outputs are available and are integrated into the circuit and/or device.

46. A method according to claim 44 wherein the fabricating step produces a rechargeable microscopic battery.

47. A method according to claim 44 wherein the fabricating step comprises depositing of spaced thin film microscopic electrode layers and etching the layers using lithographic patterning technology.

48. A method according to claim 47 wherein the etching creates space for electrolyte.

49. A method according to claim 44 wherein components comprising the microscopic battery are mounted on a rigid substrate.

50. A method according to claim 44 wherein components comprising the microscopic battery are mounted on a yieldable material.

51. A method of making a microscopic battery comprising the steps of:

forming spaced thin film microscopic electrode layers upon non-conducting material;

etching away undesired portions of at least one thin film microscopic electrode layer;

interposing electrolyte between the remaining microscopic electrode layers.

52. A method according to claim 51 further comprising the step of interposing a microscopic separator between the microscopic electrode layers.

53. A method according to claim 52 wherein the microscopic separator is etched to provide a cavity for the electrolyte.

54. A method according to claim 51 further comprising the step of interposing a non-conductive microscopic polymeric separator between the microscopic electrode layers.

55. A method of making a microscopic battery comprising the steps of:

forming several microscopic battery cells by depositing spaced thin film microscopic electrode layers on non-conducting material of each cell;

removing undesired portions of at least one thin film microscopic electrode layer of each cell;

interposing electrolyte between the microscopic electrode layers of each cell;

electrically connecting the cells in a desired arrangement.

56. A method of making a microscopic battery according to claim 55 wherein the electrically connecting step provides sets of output terminals having different voltage levels.

57. A method of making a microscopic battery according to claim 55 wherein the electrically connecting step provides different output terminals providing different voltage levels for powering digital and RF devices.

58. A method of making a microscopic battery according to claim 55 further comprising the step of encapsulating each cell.

59. A method of making a microscopic battery according to claim 55 wherein the forming step comprises several deposition steps and involves thin film deposition.

60. A method of making a microscopic battery according to claim 55 wherein the removing step is by selective etching.

61. A method of making a microscopic battery according to claim 60 wherein the etching removes an undesired part of the non-conducting material to form a storage cavity for the electrolyte.

62. A method of making a microscopic battery according to claim 55 wherein the interposing step comprises introducing electrolyte through a hole in one of the microscopic electrode layers.

63. A method of making a microscopic battery according to claim 55 wherein the interposing step comprises injection of the electrolyte from a medical needle.

64. A microscopic battery comprising a thin microscopic rod-shaped electrode surrounded by electrolyte which is enclosed by a microscopic electrode which surrounds the electrolyte.

65. A multi-cell rechargeable microscopic battery which is energy efficient and characterized by low power losses for integration into MEMS and non-MEMS microcircuitry, the microscopic battery comprising a plurality of interconnected microscopic battery cells, each cell comprising a microscopic cathode, a microscopic anode and a microscopic quantity of electrolyte enclosed within a casing.

66. A multi-microscopic cell microscopic battery according to claim 65 wherein at least some of the microscopic cells are connected in parallel.

67. A multi-microscopic cell microscopic battery according to claim 65 wherein at least some of the microscopic cells are connected in series.

68. A multi-microscopic cell microscopic battery according to claim 65 wherein at least some of the microscopic cells are interconnected to comprise at least two sources of electrical energy each at a different voltage.

69. A multi-microscopic cell microscopic battery according to claim 65 wherein at least some of the microscopic cells are interconnected to provide power sources for both analog and digital purposes.

70. A microscopic conformal microscopic battery comprising a flexible layer for contiguous mounting on a non-flat surface and at least one microscopic cell mounted on one side of the flexible layer and comprised of two microscopic electrodes and a microscopic amount of electrolyte encased within an enclosure.

71. A microscopic conformal microscopic rechargeable battery according to claim 70 further comprising sensor circuitry mounted to the one side of the flexible layer directly integrated with the microbattery and solar cells for recharging the microscopic battery carried at the one side of the flexible layer.

72. A microscopic conformal microscopic battery according to claim 70 wherein the flexible layer comprises a polymeric membrane.

73. A microscopic conformal microscopic battery according to claim 70 wherein the flexible layer comprises a smart sensing surface.

74. In combination, at least one MEMS and a rechargeable microscopic battery comprising an integrated internal source of electrical energy within the MEMS.

75. In combination, a MEMS, a microcircuit and a rechargeable microscopic battery comprising a fully integrated internal source of electrical energy to the MEMS and microcircuit with low power losses associated therewith.

76. In combination, a microelectronic circuit and a rechargeable battery comprising an integrated internal source of electrical energy within the micro electronic circuit having low power losses associated therewith.

77. In combination, a microcircuit and/or a MEMS and a microscopic battery fully integrated with the microcircuit and/or MEMS to internally supply electrical energy to the micro circuit and/or MEMS.

78. An integrated microelectronics system comprising an internal microscopic battery formed simultaneously with the microelectronics system using thin film deposition, sacrificial layer and etching technology to jointly fabricate electrodes and electrolyte space for the microscopic battery, the components of the microelectronics system and integrated conductors spanning between the electrodes and system.

79. A MEMS circuit and a microscopic battery fully and simultaneously integrated into the MEMS device as an internal source of electrical energy, the MEMS and the microscopic battery being formed in common using thin film deposition, sacrificial layer removal and etching techniques.

80. A microcircuit and a microscopic battery simultaneously to comprise common thin film elements which span between the microscopic battery and the microcircuit, the common thin film elements being formed using metallic deposition, sacrificial layer removal and etching techniques.

81. A microscopic battery comprising a pair of microscopic electrodes, a microscopic amount of electrolyte disposed in a microscopic site, an area as low as 50 μm x 50 μm and a volume as low as 50 μm x 50 μm x 50 μm.

82. In stacked combination, a rigid non-conductive base, a microscopic battery superimposed upon the base and a microcircuit superimposed upon and integrated with the microscopic battery.

83. A microscopic battery comprising microscopic electrodes and a microscopic amount of electrolyte having low power loss characteristics and a power discharge capability within the range of 10 W/cm^2 of area and 0.01 W/cm^2 of area or less.

84. A microscopic battery according to claim 83 wherein the electrolyte is liquid and the power discharge capability is on the order of 1 W/cm^2 of area or less.

85. A microscopic battery according to claim 83 wherein the electrolyte is solid and the power discharge capability is on the order of 0.01 W/cm^2 of area or less.

86. A microscopic battery comprising spaced concentric electrodes with electrolyte concentrically interposed between the electrodes.

87. A method of making a microscopic battery comprising the steps of: providing extrudable sources of cathode material, anode material and electrolyte materially and extruding the three materials simultaneously in concentric relation with the extruded electrolyte material interposed between the extruded anode and cathode materials.

88. A microscopic battery comprising features including spaced microscopic electrodes and a microscopic cavity containing electrolyte, at least one feature having a dimension as small as ½ micron.

89. A conformable microscopic battery comprising a first microscopic electrode in the form of a wire, electrolyte concentrically disposed around the wire and a second hollow tubular electrode concentrically surrounding the electrolyte.

90. A conformable microscopic battery according to claim 89 wherein the electrolyte is aqueous.

91. A conformable microscopic battery according to claim 90 wherein the aqueous electrolyte is disposed in a porous material.

92. A conformable microscopic battery according to claim 89 wherein the electrolyte is solid.

93. In combination, at least one microelectronic circuit and a microscopic battery comprising at least three of microscopic battery cells, at least one interconnection being disposed between at least some of the cells, the at least one interconnection comprising a switch by which the configuration of the cells is changed.

94. A rechargeable small area microscopic battery comprising first and second thin spaced microscopic electrodes and a microscopic amount of aqueous electrolyte disposed in a microscopic cavity between the thin microscopic electrodes.

95. A method of making a microscopic battery comprising seriatim depositing a as thin films a microscopic first electrode, a spacer and a microscopic second electrode, etching a part of the spacer to create a microscopic cavity and filling the microscopic cavity with aqueous electrolyte through a passageway in one of the thin films.

96. A method according to claim 95 wherein the filling step is through a passageway in one of the microscopic electrodes.

97. A method according to claim 95 further comprising the step of closing the passageway after the filling step.

98. A method of confirming the size of at least one feature of a microscopic battery comprising the step of: concurrently fabricating the microscopic battery and a substantially similar test battery using substantially the same fabrication step and examining at least one feature of the test battery to ascertain the at least one feature of the microscopic battery.

99. A method according to claim 98 wherein the fabricating step comprises forming a substantially identical microscopic electrolyte cavity in both the microscopic battery and the test battery and examining step comprises inspecting the microscopic cavity of the test battery.

100. A method according to claim 99 comprising the step of covering the microscopic cavity of the test battery with a layer of transparent material and wherein the examining step comprises visually inspecting the microscopic cavity of the test battery through the transparent layer.

101. A method of unitarily fabricating an integrated circuit and microscopic battery as an internal part of the integrated circuit comprising seriatim depositing as thin films a first microscopic electrode layer, a separator layer and a second microscopic electrode layer while similarly fabricating the integrated circuit at the same site and electrically interconnecting the microscopic battery to the integrated circuit.

102. A method according to claim 101 wherein the interconnecting step comprise at least one of wire bond, flip chip, TAB and integral metallic ribbon.